

NETHERLANDS Status of R&D Cooperation

~~Memorandum of Cooperation~~ - On November 16, 1990, the Director General of Civil Aviation, Kingdom of the Netherlands signed a Memorandum of Cooperation (MOC) with the FAA which provides for joint analyses, exchange of research equipment and results and other cooperative efforts. ~~Annexes 1 and 2~~ to the MOC, which cover the development of a Simulator for Multi-radar Analysis for Realistic Traffic (SMART) to be integrated into the Radar Analysis Support Subsystem (RASS), and the evaluation of a multipurpose Data-Link display, were also signed. Annex 1 includes FAA funding for design, development, testing, and delivery of a Radar Subsystem for the SMART. This work will be completed in the Netherlands at a cost of about \$200K.

On May 22, 1991, the Director General of Civil Aviation signed ~~Annex 3~~ to the FAA/DGCA Memorandum of Cooperation. The Annex will initially cover activities such as aging aircraft, structural airworthiness, and effects of lightning and high energy radio fields. Some of the cooperative research and development programs will involve FAA funding of testing and research projects carried out in the Netherlands.

A draft Annex 4 to the Memorandum of Cooperation, which will continue research and development cooperation relative to the Microwave Landing System (MLS) is currently in coordination.

AIA-212
July 23, 1991

MEMORANDUM OF COOPERATION

BETWEEN

FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

AND THE

DEPARTMENT OF CIVIL AVIATION
MINISTRY OF TRANSPORT AND PUBLIC WORKS
KINGDOM OF THE NETHERLANDS

WHEREAS, the Federal Aviation Administration of the Department of Transportation of the United States of America, hereinafter referred to as the FAA, and the Department of Civil Aviation, Ministry of Transport and Public Works, Government of the Netherlands, hereinafter referred to as the DCA, have as a common purpose the promotion and development of technical cooperation in civil aviation between the two countries, and;

WHEREAS, the Administrator of the FAA is authorized to develop, modify, test, and evaluate systems, procedures, facilities and devices to meet the needs for safe and efficient systems in civil aviation; and

WHEREAS, such cooperation will encourage and foster the development of civil aeronautics and air commerce in the U.S. and abroad;

NOW THEREFORE, FAA and the DCA, hereinafter referred to as the parties, agree to undertake joint programs, in accordance with the following understanding and arrangements.

ARTICLE I - PURPOSE OF AGREEMENT

A. The purpose of this Memorandum of Cooperation (MOC) is to establish an umbrella agreement for mutual cooperation in the area of civil aviation.

B. This purpose may be achieved by cooperation in any of the following areas:

- o The exchange of information regarding programs and projects, research results or publications.
- o The execution of joint analyses.
- o The coordination of research and development programs and projects, and their execution based on shared effort.
- o The exchange of scientific and technical staff.
- o The exchange of specific equipment and systems for research activities and compatibility studies.
- o The joint organization of symposia or conferences.
- o Reciprocal consultations with the aim of establishing concerted action in appropriate international bodies.

C. The specific activities to be performed by the parties under this MOC will be detailed in annexes to this MOC, which will be mutually agreed to by the FAA and the DCA.

ARTICLE II - FUNDING

A. Participation by the parties in cooperative activities under this MOC is subject to the availability of appropriated funds.

B. Funds required to support activities will be described in annexes and respective appendices to this MOC. The annexes and appendices will set forth the specific and detailed financial arrangements concerning the activities.

ARTICLE III - IMPLEMENTATION

A. This MOC shall be implemented through technical annexes, which when mutually agreed to by both parties shall form part of this MOC.

B. Representatives from the FAA and the DCA will meet periodically to discuss potential new program activities. A joint review of the program status of ongoing activities, which are the subject of annexes to this MOC, will be conducted at least once each year by the parties.

ARTICLE IV - EXCHANGE OF PERSONNEL

Under this MOC and as identified in the annexes to this MOC, an exchange of technical personnel may be undertaken as required to pursue the activities described in the annexes. Such personnel will accomplish work as mutually agreed by the parties

in the annexes. Such personnel may be from the FAA, the DCA, or supporting Government agencies, as mutually agreed.

Administrative support provisions for personnel being exchanged shall be delineated in each appropriate annex.

ARTICLE V - EQUIPMENT AND LOAN ARRANGEMENTS

Equipment may be loaned or exchanged by the parties in the annexes to this MOC. Such equipment will be identified in each appropriate annex. With respect to the exchange of equipment, the following general provisions apply unless otherwise specified in the annexes:

- o The lender will identify the value of the equipment and, at its own expense, transport the equipment to the borrower's designated location.
- o The borrower will assume custody and possession of said equipment upon its delivery to the designated receiving point.
- o The borrower assumes responsibility for installation of equipment at the borrowers location.
- o Upon completion of use or expiration or termination of the pertinent annex or the MOC, the borrower will return the equipment to the lender at the borrower's

expense. The equipment will remain in the custody of the borrower until returned to the lender's designated receiving point.

- o The party shipping the equipment will assist in securing export licenses and other documents with respect to the equipment.
- o The lender will assist the borrower in locating sources of supplies for common items and parts peculiar which are not readily available to the borrower.
- o The borrower will place and install equipment in accordance with the agreed program plan, as shown in the annex.
- o The borrower will operate and maintain equipment in proper condition during the period of the loan, and will ensure operability of the equipment and will permit inspection by the lender at any reasonable time.
- o In the event of loss or damage of any equipment loaned under this MOC and for which the borrower has assumed custody and possession, the borrower agrees to compensate the lender for value of items lost or damaged.

- o Any equipment exchanged under this MOC shall be solely for research or developmental purposes and shall not be used in any way whatsoever for active civil aviation or other operational use.
- o Any transfers of technology, equipment or other items pursuant to this MOC shall be subject to the applicable laws and policies of the parties.

ARTICLE VI - RIGHTS

Except as required by applicable law, neither party will release any information or material pertinent to the tasks, or related to the agreed program, to third parties other than contractors or subcontractors engaged in the program.

ARTICLE VII - LIABILITY

The parties will make best efforts to ensure the accuracy of all data, but the accuracy of such data is not guaranteed. Each party will use the other's data at its own risk and may not hold the other party responsible in the event of claims arising out of the use of said data.

ARTICLE VIII - LIAISON

Technical program liaison will be established as indicated in the annexes for specific activities.

ARTICLE IX - AMENDMENTS

This MOC or its annexes may be amended by mutual consent of the parties to provide for expansion of requirements and continuation of the programs. Any changes in the services furnished or other provisions shall be formalized by an appropriate written amendment, signed by both parties, which shall outline the nature of the change.

ARTICLE X - RESOLUTION OF DISAGREEMENTS

Any disagreement regarding the interpretation or application of this MOC or its annexes will be resolved by consultation between the two parties and will not be referred to any international tribunal or third party for settlement.

ARTICLE XI - EFFECTIVE DATE AND TERMINATION

This MOC shall become effective upon signature of both parties and will remain in effect until terminated. This MOC may be terminated at any time by either party by providing sixty (60) days notice in writing to the other party.

ARTICLE XII - AUTHORITY

The FAA and the DCA agree to the provisions of this MOC as indicated by the signature of their duly authorized representatives.

FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

BY: Joan W. Bauerlein
Joan W. Bauerlein
Director, Office of
TITLE: International Aviation

DATE: 28 September 1990

DEPARTMENT OF CIVIL AVIATION
MINISTRY OF TRANSPORT AND
PUBLIC WORKS
KINGDOM OF THE NETHERLANDS

BY: H. Raben
H. Raben R. SCHREURS
Acting Director General of
TITLE: Civil Aviation

DATE: 16 November 1990

ANNEX 1

TO

MEMORANDUM OF COOPERATION AIA/CA-52

BETWEEN THE

FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

AND THE

DEPARTMENT OF CIVIL AVIATION
MINISTRY OF TRANSPORT AND PUBLIC WORKS
KINGDOM OF THE NETHERLANDS

ARTICLE I - PURPOSE OF THE ANNEX

This Annex identifies and defines the requirements of the FAA and the DCA to establish a method of cooperating in the development of a Simulator for Multi-radar Analysis for Realistic Traffic (SMART) to be integrated into the Radar Analysis Support Subsystem (RASS).

ARTICLE II - SCOPE OF WORK

The scope of work of this Annex will be divided into the following task areas:

A. Development of SMART. The design and development of SMART will comprise the following cooperative activities:

1. Design and development of a Radar Subsystem (RSS) program for execution on the RASS Apollo 3500/4000/4500 series of machines in accordance with the RSS program's specification (available under separate cover).

2. Integration of a Traffic Subsystem (TSS) to interoperate within the RSS such that radar plot simulation scenarios are generated.

3. Development and delivery of the supporting documentation for the SMART system.

B. Integration of the SMART into RASS. The parties will jointly perform the development and testing required to assure the satisfactory interaction of the SMART and the RASS. This will involve the integration of the SMART system into the RASS Version 3.1. and include the incorporation of the current improvements to RASS 2.1 provided by the EUROCONTROL Experimental Center. Work under this section will be performed to produce the system described in the RSS specification.

C. Acceptance and Evaluation Testing. The parties will jointly develop appropriate acceptance testing procedures and tests to adequately verify the performance of the SMART system developed. This will involve:

1. Assuring that the developed RSS satisfies the requirements set forth in the RSS specification, including the interoperability and integration of the TSS with the RSS.

2. Acceptance and subsequent evaluation testing of the SMART as an integrated module within the RASS. The intent of this testing will be to ensure that maximum capabilities of the RASS/Simulator system are achieved.

D. Critical program activities requiring joint DCA/FAA coordination and participation will be described in specific appendices to this Annex. When signed by both parties, such appendices shall become part of this Annex.

ARTICLE III - POINTS OF CONTACT

A. The designated offices for the coordination and management of this Annex are:

1. In the
United States:

Mr. David Lakins
Manager, National Automation Field
Support Division, ASM-400
FAA Technical Center
Atlantic City International
Airport, NJ 08405

Phone: +1 609 484-6611
Facsimile: +1 609 484-4235

2. In the
Netherlands:

Mr. Herry J. Klumper
Department of Civil Aviation
Aeronautical Inspection Directorate
Saturnusstraat 71
P.O. Box 575
2130 AN Hoofddorp

Phone: +31 2503 63222
Facsimile: +31 2503 40741

B. The project officers designated above will generally manage cooperative activities under this Annex, including the development of mutually acceptable statement of tasks, related schedules and expenditures to be undertaken within the Annex.

The project officers may delegate to authorized program personnel, as appropriate, authority to participate in either FAA's or DCA's programs.

ARTICLE IV - FUNDING

A. The funds required to support activities under this Annex will be described in appendices to this Annex. Each appendix will set forth the specific and detailed financial arrangements concerning the activities described in that appendix.

B. Funding for work accomplished under this Annex will be provided by the FAA and shall be paid in advance in Dutch Florins (Dfl). Amounts will be specified in appendices to this Annex.

C. Any funds remaining at the termination of all project activities will be returned in U.S. Dollars to the FAA via the U.S. Embassy at The Hague.

D. Travel and accommodation expenses incurred by the representatives of either party in the course of work specified by this Annex shall be borne by their respective organizations.

ARTICLE V - AMENDMENTS

This Annex may be amended in accordance with Article IX of the basic Agreement.

ARTICLE VI - EFFECTIVE DATE AND TERMINATION

This Annex shall become effective upon signature of both parties and will remain in effect until the services described herein are completed or may otherwise be amended, or until such time as the basic agreement (AIA/CA-52) is terminated. Either party may terminate this Annex as provided for in Article XI of the basic Agreement.

ARTICLE VII - AUTHORITY

The FAA and the DCA agree to the provisions of this Annex as indicated by the signature of their duly authorized representatives.

FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

DEPARTMENT OF CIVIL AVIATION
MINISTRY OF TRANSPORT AND
PUBLIC WORKS
KINGDOM OF THE NETHERLANDS

BY: Joan W. Bauerlein
Joan W. Bauerlein
Director, Office
TITLE: International Aviation

BY: H. Raben R. Schreurs
H. Raben R. Schreurs
Director General of
TITLE: Civil Aviation

DATE: 28 September 1990

DATE: 16 November 1990

BY: Joseph M. Del Balzo
Joseph M. Del Balzo
Executive Director for
TITLE: System Development

DATE: 9/24/90

APPENDIX 1
TO
ANNEX 1

WORK PLAN

FOR

DEVELOPMENT OF A SIMULATOR FOR MULTI-RADAR ANALYSIS FOR
REALISTIC TRAFFIC (SMART)

SCHEDULE OF ACTIVITIES

The initial activities to be accomplished for the tasks as mentioned under this Annex shall take place according to the following schedule:

<u>Program Activities</u>	<u>Date</u>
Project Initiation (SMART)	October 1990
Initial project design planning complete	November 1990
RSS preliminary design complete	May 1991
RSS design and development complete	November 1991
RSS design test and evaluation	February 1992
RSS acceptance testing	June 1992

This initial schedule is applicable to the design, development, testing, and delivery of a Radar Subsystem (RSS) for the SMART system. The RSS shall be developed such that the RSS is assured to satisfy the requirements set forth in the RSS specification. This assurance shall include developing the RSS to operate in conjunction with the TSS such that the RSS generates all radar plots for all of the trajectories generated by the TSS.

FUNDING

FAA funding for the tasks as defined above shall not exceed Dutch Florins 371,000--approximately 200,000 U.S. Dollars--and will be paid pursuant to appropriation code 699/38107/833800/980/2591, FAA Project Code No. T60-02X.

Payments shall be made in advance by the FAA to:

Directie ~~Mr. Herry J. Klumper~~
~~Directie~~ Luchtvaart Inspectie
Postal Account number 565185
Hoofddorp
Holland

PROJECT OFFICERS

FEDERAL AVIATION ADMINISTRATION

DEPARTMENT OF CIVIL AVIATION

BY: David Lakins
David Lakins
Manager, National Automation
Engineering Field Support

BY: Herry J. Klumper
Herry J. Klumper
Aeronautical Inspection

TITLE: Support Division, ASM-400

TITLE: Directorate

DATE: 10/9/90

DATE: 26-11-90

Rel-92.011685

ANNEX 2

TO

MEMORANDUM OF COOPERATION AIA/CA-52

BETWEEN THE

FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

AND THE

DEPARTMENT OF CIVIL AVIATION
MINISTRY OF TRANSPORT AND PUBLIC WORKS
KINGDOM OF THE NETHERLANDS

ARTICLE I - PURPOSE OF THE ANNEX

This Annex identifies and defines the requirements of the FAA and the DCA to establish a method of cooperating in the joint evaluation of a multipurpose data-link display intended for use in aviation cockpits.

ARTICLE II - SCOPE OF WORK

A. The FAA and the DCA agree to install a Data Link Display Unit, provided by the FAA, in a moving base flight simulator configured as a Boeing 747-400 aircraft. The FAA and the DCA propose to:

1. Define a location of the Data Link display in the cockpit, and assess its effectiveness to the pilot.

2. Assess the effectiveness and value of the data-link messages through exposure to line pilots and air traffic controllers.

3. Develop and evaluate messages and procedures related to the Automatic Dependant Surveillance system.

4. Duplicate and analyze specific flight tests and other trials.

B. The FAA will contribute personnel and technical data, as required; the FAA will also contribute funds to cover a portion of the development cost. Critical program activities requiring joint FAA/DCA coordination and participation will be described in specific appendices to this Annex. When signed by both parties, such appendices shall become part of this Annex.

ARTICLE III - POINTS OF CONTACT

The designated officers for the coordination and management of this Annex are:

1. In the
United States: Mr. Lucien V. Gormont
NAS International Programs Office,
ASD-20
800 Independence Avenue, S.W.
Washington, D.C. 20591
Phone: 202 267-3044
Facsimile: 202 267-5055
2. In the
Netherlands: Mr. Herry J. Klumper
Department of Civil Aviation
Aeronautical Inspection Directorate
Saturnusstraat 71
P.O. Box 575
2130 AN Hoofddorp
Phone: 31 2503 63222
Facsimile: 31 2503 40741

B. The project officers designated above will generally manage cooperative activities under this Annex, including the development of mutually acceptable statement of tasks, related schedules and expenditures to be undertaken within the Annex.

The project officers may delegate to authorized program personnel, as appropriate, authority to participate in FAA or DCA programs.

ARTICLE IV - FUNDING

A. The funds required to support activities under this Annex will be described in appendices to this Annex. Each appendix will set forth the specific and detailed financial arrangements concerning the activities described in that appendix.

B. Funding for work accomplished under this Annex will be provided by the FAA and shall be paid in advance in Dutch Florins (Dfl). Amounts will be specified in appendices to this Annex.

C. Any funds remaining at the termination of all project activities will be returned in U.S. Dollars to the FAA via the U.S. Embassy at The Hague.

D. Travel and accommodation expenses incurred by the representatives of either party in the course of work specified by this Annex shall be borne by their respective organizations.

ARTICLE VI - AMENDMENTS

This Annex may be amended in accordance with Article IX of the basic Agreement.

ARTICLE VII - EFFECTIVE DATE AND TERMINATION

This Annex shall become effective upon signature of both parties and will remain in effect until the services described herein are completed or may otherwise be amended, or until such time as the basic agreement (AIA/CA-52) is terminated. Either party may terminate this Annex as provided for in Article XI of the basic Agreement.

ARTICLE VIII - AUTHORITY

The FAA and the DCA agree to the provisions of this Annex as indicated by the signature of their duly authorized representatives.

FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

BY: Joan W. Bauerlein
Joan W. Bauerlein
Director, Office of
TITLE: International Aviation

DATE: 28 September 1990

BY: Joseph M. Del Balzo
Joseph M. Del Balzo
Executive Director for
TITLE: System Development

DATE: 9/24/90

DEPARTMENT OF CIVIL AVIATION
MINISTRY OF TRANSPORT AND
PUBLIC WORKS
KINGDOM OF THE NETHERLANDS

BY: H. Raben
H. Raben
Director General of
TITLE: Civil Aviation

DATE: 16 November 1990

ANNEX 3

TO

MEMORANDUM OF COOPERATION AIA/CA-52

BETWEEN THE

FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

AND THE

DEPARTMENT OF CIVIL AVIATION
MINISTRY OF TRANSPORT AND PUBLIC WORKS
KINGDOM OF THE NETHERLANDS

ARTICLE I - PURPOSE OF THE ANNEX

The Annex identifies and defines the cooperation between the Department of Civil Aviation (DCA) and the Federal Aviation Administration (FAA) in the research and development of aircraft operations safety related programs.

ARTICLE II - SCOPE OF WORK

A. Work under this Annex will be conducted in, but shall not be limited to, the following task areas:

1. Aging Aircraft

The problems associated with the continued operation of aging aircraft constitute an area of major interest to the FAA and DCA. Specific topics to be considered under this heading include corrosion, fatigue, crack initiation and growth, corrosion inhibiting chemicals, load factors, inspection (destructive and non-destructive) techniques and reliability, and other related protective tasks and studies.

2. Structural Airworthiness

This item includes the possible joint studies of the behavior of structural elements placed under various conditions of stress, including crash conditions. It can also include functional systems, such as fuel systems.

3. Direct and Indirect Effects of Lightning

Cooperation on this subject is directed toward the study, evaluation, and protection against the disturbances generated in the instrumentation and control systems when the aircraft is struck by, or is in close vicinity of lightning.

4. Effects of High Energy Radio Fields

Cooperation on this subject is directed toward the study, evaluation, and protection against the disturbances generated in the instrumentation and control systems when the aircraft is exposed to high intensity electromagnetic fields.

B. The ultimate objective of these studies is the acquisition, by both parties, of data and test methods needed to support aircraft operations safety.

ARTICLE III - IMPLEMENTATION

A. Critical program activities and tasks requiring joint FAA/DCA coordination and participation shall be described in specific appendices to this Annex. When signed by both parties, such appendices shall become part of this Annex.

B. Some of the elements of work to be done may be carried out in contracted facilities, in which case oversight will be provided by the resident party in coordination with the other party.

ARTICLE IV - POINTS OF CONTACT

A. The designated points of contact for the management of the technical issues under this Annex are:

1. In the
United States:

Mr. Lucien V. Gormont
Federal Aviation Administration
NAS International Programs Office,
ASD-20
800 Independence Avenue, S.W
Washington, D.C. 20591

Phone: (202) 267-3044
Facsimile: (202) 267-5055

2. In the
Netherlands:

Mr. Herry J. Klumper
Department of Civil Aviation
Aeronautical Inspection Directorate
Saturnusstraat 71
P.O. Box 575
2130 AN Hoofddorp

Phone: 31 2503 63222
Facsimile: 31 2503 40741

B. The project offices designated above will generally manage cooperative activities under this Annex, including the development of mutually acceptable statements of tasks and related schedules and expenditures to be undertaken within the Annex. The project offices may delegate to authorized program personnel, as appropriate, authority to participate in either FAA or DCA programs.

ARTICLE V - FUNDING

A. The funds required to support activities under this Annex shall be described in appendices to this Annex. Each appendix shall set forth the specific and detailed financial arrangements concerning the activities described in that appendix.

B. Travel and accommodation expenses incurred by the representatives of either party in the course of work performed under this Annex shall be borne by their respective organizations.

ARTICLE VI - AMENDMENTS

This Annex or its appendices may be amended in accordance with Article VIII of the basic Agreement (AIA/CA-52).

ARTICLE VII - EFFECTIVE DATE AND TERMINATION

This Annex shall become effective upon signature of both parties and will remain in effect until the services described herein are completed or may otherwise be amended, or until such time as the basic agreement (AIA/CA-52) is terminated. Either party may terminate this Annex as provided for in Article X of the basic Agreement.

ARTICLE VIII - AUTHORITY

The FAA and the DCA agree to the provisions of this Annex as indicated by the signature of their duly authorized representatives.

FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

BY: *Joan W. Bauerlein*
Joan W. Bauerlein
Director, Office of
TITLE: International Aviation

DATE: 21 February 1991

DEPARTMENT OF CIVIL AVIATION
MINISTRY OF TRANSPORT AND
PUBLIC WORKS
KINGDOM OF THE NETHERLANDS

BY: *R. Schreurs*
R. Schreurs, Acting
Director General of
TITLE: Civil Aviation

DATE: 22-5-91